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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/071,689	02/08/2002	Zhong Dong	M-12327 US	2077

7590

08/14/2002

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EXAMINER

PIZARRO CRESPO, MARCOS D

ART UNIT

PAPER NUMBER

2814

DATE MAILED: 08/14/2002

5

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/071,689

Applicant(s)

DONG ET AL.

Examiner

Marcos D. Pizarro-Crespo

Art Unit

2814

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 2/8/2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) 4-6, 8 and 9 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-9 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Art Unit: 2814

Attorney's Docket Number: M-12327 US

Filing Date: 2/8/2002

Claimed Foreign Priority Date: none

Applicant(s): Dong et al.

Examiner: Marcos D. Pizarro-Crespo

DETAILED ACTION

This Office action responds to the election (paper no. 4) filed on 2/8/2002.

Election/Restrictions

1. Applicant's election without traverse of claims 1-3 and 7 in paper no. 4 is acknowledged. Claims 4-6, 8, and 9, are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-3 and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by Takeuchi (US 5661056).

4. Takeuchi shows (see, e.g., figs. 2B, 3A-3D) all aspects of the instant invention including a method for manufacturing an integrated circuit comprising a non-volatile memory **20**, the method comprising:

Art Unit: 2814

- forming a first layer **41** comprising silicon, nitriding a surface of the first layer to incorporate nitrogen atoms into said surface (col.4/ll.24-26)
- forming a first dielectric **25** at the nitrided surface **24**
- forming a conductive layer **42** separated from the nitrided surface **24** by the first dielectric **25**

wherein:

- the first layer **41** provides one or more floating gate for the non-volatile memory **20** (col.4/ll.24-26, 67)
- forming the first dielectric **25** comprises forming silicon oxide at the nitrided surface **24** (col.4/ll.26-28)
- the conductive layer **42** provides one or more control gates for the non-volatile memory **20** (col.7/ll.16)

5. Regarding claim 2, Takeuchi shows that thermal oxidation may be used to form the silicon oxide at the nitrided surface **24** (col.4/ll.26-28, 49-53).

6. Regarding claim 3, Takeuchi shows that the surface of the first layer is a polysilicon surface (col.4/ll.24-26).

7. Regarding claim 7, Takeuchi shows all aspects of the instant invention including a method for manufacturing an integrated circuit comprising a non-volatile memory **20**, the method comprising:

- forming a first layer **41** to provide one or more floating gate for the non-volatile memory **20** (col.4/ll.24-26, 67)
- forming a first dielectric **25** on a surface of the first layer **41**

- nitriding a first surface of the first dielectric **25** to incorporate nitrogen atoms into the first surface (col.4/ll.28-30)
- forming a conductive layer **42** on the nitrided first surface **26** of the first dielectric **25**

wherein:

- the first surface of the first dielectric **25** comprises silicon oxide (col.4/ll.26-28)
- the conductive layer **42** provides one or more control gates for the non-volatile memory **20** (col.7/ll.16)

Conclusion

8. Papers related to this application may be submitted directly to Art Unit 2814 by facsimile transmission. Papers should be faxed to Art Unit 2814 via the Art Unit 2814 Fax Center located in Crystal Plaza 4, room 3C23. The faxing of such papers must conform to the notice published in the Official Gazette, 1096 OG 30 (15 November 1989). The Art Unit 2814 Fax Center number is **(703) 308-7722** or **-7724**. The Art Unit 2814 Fax Center is to be used only for papers related to Art Unit 2814 applications.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Marcos D. Pizarro-Crespo** at **(703) 308-6558** and between the hours of 9:00 AM to 7:30 PM (Eastern Standard Time) Monday through Thursday or by e-mail via Marcos.Pizarro@uspto.gov. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri, can be reached on (703) 306-2794.

Art Unit: 2814

10. Any inquiry of a general nature or relating to the status of this application should be directed to the **Group 2800 Receptionist** at **(703) 308-0956**.

11. The following list is the Examiner's field of search for the present Office Action:

Field of Search	Date
U.S. Class / Subclass(es): 438/257-267, 257/324	8/8/2002
Other Documentation:	8/8/2002
Electronic Database(s): EAST (USPAT, EPO, JPO)	8/8/2002

Marcos D. Pizarro-Crespo

Patent Examiner

Art Unit 2814

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MDP/mdp
August 8, 2002



ALLAN R. WILSON
PRIMARY EXAMINER